

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CREIGHTON C. KELLY,
and DAVID D. HILDRETH

Appeal 2007-0291
Application 09/976,412
Technology Center 1700

Decided: March 28, 2007

Before CHARLES F. WARREN, THOMAS A. WALTZ, and
JEFFREY T. SMITH, *Administrative Patent Judges*.

WALTZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal from the Primary Examiner's final rejection of claims 5 through 14, 19 through 31, 37, and 38, which are the only claims pending in this application. We have jurisdiction pursuant to 35 U.S.C. §§ 6 and 134.

According to Appellants, the invention is directed to a low contaminant wiper suitable for use in a cleanroom environment, where the wiper is made from low contaminant polyester filaments substantially free of inorganic ionic additives with a discontinuous fused border zone along one or more perimeter edges (Br. 3). Independent claim 5 is illustrative of the invention and is reproduced below:

5. A low contaminant wiper suitable for use in a cleanroom environment and being constructed of a low contaminant textile fabric having a machine direction and a cross-machine direction, said fabric being formed from a multiplicity of yarns made of polyester filaments, the low contaminant wiper comprising: an interior and a plurality of perimeter edges disposed in surrounding relation to the interior and at least one discontinuous fused border zone disposed inboard of and extending substantially parallel to at least two of the perimeter edges, wherein each of said discontinuous fused border zones comprises a plurality of substantially discrete fusion points formed by localized melt fusion of said thermoplastic filaments such that said discrete fusion points are disposed within a matrix of unmelted material, and wherein said polyester filaments are substantially free of inorganic ionic additives, such that complete combustion of said polyester filaments yields an ash content of not greater than about 0.1% of the initial weight of said polyester filaments.

The Examiner has relied on the following references as evidence of obviousness:

Paley	US 4,888,229	Dec. 19, 1989
Langley	US 4,938,817	Jul. 03, 1990
Rockwell	US 6,001,442	Dec. 14, 1999
Dean	US 6,139,954	Oct. 31, 2000
Morin	US 6,189,189 B1	Feb. 20, 2001

ISSUES ON APPEAL

Claims 5-14, 19-31, 37, and 38 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Paley, Langley, and Morin in view of Dean (Answer 3).

Claims 5-14 and 19-31 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Paley and Rockwell in view of Dean (Answer 6). Claims 37-38 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Paley, Rockwell, and Dean further in view of Morin (Answer 8).

Appellants contend that Paley is directed to a wiper for reducing particulate contamination of a cleanroom environment where the wiper has a continuous fused border or edge to capture or retain all loose fibers from the cut edges of the wiper fabric (Br. 8). Appellants further contend that Paley teaches away from the claimed construction by disclosing that “localized melting of the segments is insufficient” to prevent the segments from release when subjected to agitation common in the use of the wiper (Br. 9).

Appellants contend that Langley fails to teach the production of cleanroom wipers and polyester yarns that are substantially free of inorganic ionic additives (Br. 11).

Appellants contend that Dean teaches the use of titanium metal catalysts in the production of polyester while Appellants disclose that polyester fiber is used that is substantially free of titanium dioxide (Br. 12-13).

Appellants contend that Rockwell is non-analogous art, directed to towels for use in a public restroom, and does not recognize the problem solved by Appellants (Br. 18-19).

The Examiner contends that Langley teaches the use of discontinuous pattern bonding and the use of a folded double layer to solve the problem of contamination by microscopic particles in a cleanroom environment, and such a patterned bonding would have been recognized by one of ordinary skill in the art as equivalent to the continuous fused bonding pattern disclosed by Paley (Answer 10-11).

The Examiner contends that the concept of Rockwell is the same as Appellants, namely to provide a more flexible material due to a discontinuous border (Answer 12).

Accordingly, the issues presented in this appeal are as follows: (1) does Paley “teach away” from the claimed discontinuous fused border? ; (2) does Dean teach polyesters within the scope of the claims? ; and (3) is Rockwell analogous art?

We determine that the Examiner has established a prima facie case of obviousness in view of the reference evidence. Based on the totality of the record, including due consideration of Appellants’ arguments and evidence, we determine that the preponderance of evidence weighs most heavily in favor of obviousness within the meaning of § 103(a). Therefore, we AFFIRM all rejections on appeal essentially for the reasons stated in the Answer, as well as those reasons set forth below.

OPINION

A. The Rejection over Paley, Langley, Morin, and Dean

We determine the following factual findings from the record in this appeal:

- (1) Paley discloses a wiper for use in a cleanroom where the wiper is preferably made from knitted polyester, and the wiper has a fused border around the periphery of the wiper with sufficient area and tear-strength to maintain segments of the material therein which otherwise might be released during use, with the border being small enough to maintain pliability and absorbency (col. 1, ll. 4-10 and 56-61; col. 2, ll. 4-22 and 57-60; and col. 3, ll. 29-58; Answer 3);
- (2) Paley teaches that severing the fabric to make the wiper leaves a cut edge along which there are free segments of the filaments that can be released into the ambient atmosphere and contaminate the environment (col. 3, ll. 1-10); furthermore, Paley teaches that “localized melting of the segments **26** is insufficient to prevent the segments **26** from release when subjected to agitation and other manipulations common in the use of the wiper” (col. 3, ll. 10-17);
- (3) Langley teaches that, in the field of cleanroom garments, formation of bonded seams avoids the release of microscopic fiber particles as a source of contamination (col. 1, ll. 8-10, 32-40, and 62-64);
- (4) Langley teaches that cleanroom garments provide an effective barrier to release into the environment of microscopic particles from the human body and from inner clothing when the seams are bonded over folded-over edges

into a discontinuous fused border zone (col. 2, ll. 15-18; col. 2, l. 54-col. 3, l. 28; *see* Figures 1 and 2; Answer 3-4);

- (5) Morin teaches the correlation between heat setting the polyester fabric at temperatures below 300 °F and the reduction of contaminates and increased absorbance capacity of cleanroom wipers (col. 6, ll. 59-62; Answer 4-5);
- (6) Dean teaches fiber made from polyesters used as binder fibers for nonwoven yarns and fabrics where lower levels of the titanium catalyst used to catalyze the formation of the polyesters yield products that have better stability when held in the melt (col. 1, ll. 19-27 and 51-52; col. 2, ll. 46-54; and col. 6, l. 37-col. 7, l. 4).

A reference “teaches away” from a claimed invention “when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994). Implicit in our review of the Examiner’s obviousness analysis is that the claim must first have been correctly construed to define the scope and meaning of any contested limitation. *See Gechter v. Davidson*, 116 F.3d 1454, 1457, 43 USPQ2d 1030, 1032, 1035 n.3 (Fed. Cir. 1997). During prosecution before the Examiner, we must apply “to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account

whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification." *In re Morris*, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997).

Applying the preceding legal principles to the factual findings in the record of this appeal, we determine that Paley does not "teach away" from the claimed subject matter, and that the Examiner has established a prima facie case of obviousness in view of the reference evidence. Paley teaches that "localized melting of the segments" is insufficient to prevent contamination during use of the wiper but this teaching does not give any indication of the relative spacing of these "localized" points of melting or fusion (*see* factual finding (2) listed above). We determine that one of ordinary skill in this art would have recognized that the number and relative location of the discontinuous "localized" points of melting or fusion would have an effect on the barrier properties, and a large number of closely spaced bonding points would have approximated the total fusion around the periphery of the wiper of Paley, with the attendant barrier preventing the release of particulates. This determination is supported by Langley, where a discontinuous pattern of bonding avoids release of microscopic particles due to the large number and close proximity of the bonding points (*see* factual findings (3) and (4) listed above). Additionally, we determine that the teaching of Paley regarding the insufficiency of "localized" melting is not contrary to Langley, as Langley teaches discontinuous bonding seams around the periphery of the garment that include folded-over edges, and not just discontinuous bonding (*see* factual finding (4) listed above). Therefore,

we determine that the teachings of the applied prior art do not lead one of ordinary skill in this art in a path divergent from the path taken by Appellants.

Appellants argue that Dean uses a titanium catalyst to prepare polyesters, and thus does not teach or suggest polyesters substantially free of inorganic ionic additives, while titanium is “explicitly excluded from the presently claimed polyester” (Br. 20). Accordingly, we must first construe the claimed phrase “substantially free of inorganic ionic additives” (*see* claim 5 on appeal). Appellants’ only disclosure regarding this phrase states that “substantially free” is equivalent to “very low levels” of inorganic additives, preferably forming a “bright” or “clear” polyester (Specification 14:9-16). Accordingly, we construe the phrase “substantially free of inorganic ionic additives” as including very low levels of inorganic ionic additives that do not impart the traditional brilliant white character normally associated with polyester. Dean discloses that his polyesters are “clear and non-opaque,” that copolyesters formed with “lower levels” of titanium catalyst materials have better stability in the melt, and exemplifies catalyst amounts of 25 parts per million (ppm) (col. 3, ll. 13-21; col. 7, ll. 2-4; and Example 1 in col. 13; *see* factual finding (6) listed above). Therefore, we determine that the polyesters taught by Dean are included within the scope of the claimed polyesters that are “substantially free of inorganic ionic additives.”

For the foregoing reasons and those stated in the Answer, we determine that the Examiner has established a *prima facie* case of obviousness in view of the reference evidence, which *prima facie* case

Appellants have not adequately rebutted by arguments or evidence.¹
Therefore, we affirm the rejection of the claims on appeal over Paley,
Langley, and Morin in view of Dean.

B. The Rejections based on Paley, Rockwell, and Dean

We incorporate our factual findings from the record as listed above
with regard to the Paley and Dean references. Additionally, we determine
the following factual findings from the record in this appeal:

- (1) Rockwell discloses a polyester fabric with ultrasonically
bonded boundary edges suitable for use in washing hands in
a restroom, where a discontinuous brick-like pattern
provides “exceptional flexibility” while sealing the edges of
the fabric (col. 1, ll. 4-7, and col. 2, ll. 14-26; Answer 7).

Determination that a reference is from non-analogous art is two-fold.
First, we must determine if the reference is within the field of the inventor’s
endeavor. If it is not, we proceed to determine whether the reference is
reasonably pertinent to the particular problem with which the inventor was
involved. *See In re GPAC Inc.*, 57 F.3d 1573, 1577, 35 USPQ2d 1116, 1120
(Fed. Cir. 1995); *and In re Wood*, 599 F.2d 1032, 1036, 202 USPQ 171, 174
(CCPA 1979).

¹ We note that Appellants present comparative data on pages 9-10 of the
Brief but specifically recognize that “these differences alone, however, are
insufficient to establish the patentability of the presently claimed invention”
(Br. 10). Although Appellants do not rely on this data as evidence to
overcome the rejection, we note that the disclosed “dramatic improvement”
has not been shown or established to be an “unexpected result” (Br. 10). *See*
In re Mayne, 104 F.3d 1339, 1344, 41 USPQ2d 1451, 1456 (Fed. Cir. 1997);
In re Merck & Co., Inc., 800 F.2d 1091, 1099, 231 USPQ 375, 381 (Fed.
Cir. 1986).

Applying this legal principle to the factual findings on the record in this appeal, we determine that Rockwell is analogous art. Therefore, we determine that the Examiner has established a prima facie case of obviousness in view of the reference evidence, which case has not been adequately rebutted by Appellants' arguments.

Appellants disclose that the technical field of their invention is the manufacturing of fabric wipers (Specification 1:3). Appellants also disclose that it has been recognized that, during use, the edges of the wiper may give rise to a disproportionately high level of particulate generation (Specification 6:16-17). Appellants acknowledge that it was known to alleviate this problem by fusing the borders of the wipers just along the edge or in a substantially solid fusion zone extending a distance inwardly from the edge (Specification 6:20-23). Appellants thus recognize the problem that such borders may cause, namely the tendency to reduce the elasticity in these areas relative to the rest of the wiper, with the resultant release of potentially undesired particulates (Specification 7:1-5). Appellants solve this problem by the use of discontinuous fused borders (Specification 10:5-10).

Therefore, we determine that Rockwell satisfies both prongs of the test for analogous art. First, we determine that Rockwell is directed to the same general field as Appellants' endeavor, namely the manufacturing of fabric towels or wipers for removing undesired material from an unclean surface. Even assuming *arguendo* that Rockwell may be considered to be directed to a different field of endeavor than Appellants, we determine that Rockwell is "reasonably pertinent" to the particular problem faced by Appellants, namely formation of a discontinuous pattern of bonding the edge of a fabric

to seal the edge while providing “exceptional flexibility” to the fabric (*see above* factual finding (1) at p. 9).²

With regard to the rejection of claims 37 and 38, the Examiner applies Morin for the reasons noted in the first rejection listed above. Appellants merely argue that Morin does not teach a cleanroom wiper with a discontinuous fused border zone on at least two edges (Br. 24). Accordingly, we adopt the findings from Morin as discussed above and in the Answer at pages 8-10, as well as the conclusion of law.

For the foregoing reasons and those stated in the Answer, we affirm the rejection of claims 5-14 and 19-31 under § 103(a) over Paley, Rockwell, and Dean, and the rejection of claims 37-38 under § 103(a) over Paley, Rockwell, Dean, and Morin.

C. Time Period for Response

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2006).

AFFIRMED

² We also note that Appellants discuss Rockwell in the Specification as directed to a device that can form the discontinuous pattern of bonding for the edge of a fabric as desired by Appellants (Specification 12:20 to 13:1).

Appeal 2007-0291
Application 09/976,412

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